

Appl. No. 10/798,639

Reply dated April 18, 2006

Reply to Office Action mailed October 19, 2006

### REMARKS

The claims are directed to an addressable microarray device, methods of making, and uses thereof. Applicant has amended claims 9 and 34 to overcome the examiner's objection to these claims and that objection should be withdrawn.

In response to the claim rejections under 35 USC 112, second paragraph, Applicant has amended claims 1 and 27 to overcome this rejection and the rejection should be withdrawn.

### PRIOR ART REJECTIONS

In response to the examiner's rejection of claims 1-4, 7-12, 17, 20-21, 26-30, 33-37, 42, 45-6, 48 and 51-52 as being anticipated by US Patent No. 5,843,767 to Beattie et al. ("Beattie"), claims 1-2 as being anticipated by US Patent No. 6,635,226 to Tso et al. ("Tso") and claims 1-21, 23-46 and 48-52 as being obvious over Beattie in view of Rauscher, Chan, Harding and Stern, Applicant respectfully traverses the rejections. The prior art cited by the examiner does not anticipate or render obvious the claims of the application for the reasons set forth below.

#### Claims 11, 22, 36 and 47

With respect to the examiner's rejection of a number of claims (1-4, 7-12, 17, 20-21, 26-30, 33-37, 42, 45-6, 48 and 51-52) based on Beattie, the examiner has improperly grouped together all of these claims in a common rejection. See MPEP 707.07(d). Due to this treatment of this group of claims, it is difficult to specifically determine where the examiner believes that Beattie discloses the features of various claims in the grouping. For example, in the rejection of this group of claims, the examiner has not established a prima facie case that Beattie anticipates claims 11, 22, 36 and 47 so Applicant presumes that these claims are allowable over the prior art of record since these claims are not properly rejected based on Beattie and are also not rejected as being obvious over Beattie and the group of prior art cited by the examiner. Therefore, Applicant requests that the examiner allow claims 11, 22, 36 and 47.

#### Claims 5-6, 11, 13-16, 18-19, 22-4, 26, 31-32, 36, 38-41, 44 and 47- 49 Based on Beattie

In the improper rejection of these claims based on Beattie, the examiner has not established a prima facie case that Beattie anticipates claims 5-6, 11, 13-16, 18-19, 22-4, 26, 31-32, 36, 38-41, 44 and 47- 49 and therefore the rejection of these claims as being anticipated by Beattie should be withdrawn.

Appl. No. 10/798,639

Reply dated April 18, 2006

Reply to Office Action mailed October 19, 2006

Claim 1

Claim 1 is not anticipated by Beattie because Beattie does not disclose "a device for performing chemical reactions, comprising a substrate having a first side and a second side opposite the first side and an array of microwells formed in the substrate, each microwell comprising a porous region: (a) defined by a continuous portion of the substrate; (b) capable of binding sample molecules; (b) defined in the first side of the substrate; (c) formed by selective removal of a substrate constituent; and (d) extending partially through the substrate." Beattie discloses tapered wells formed in a nanoporous glass wafer wherein the nanoporous glass wafer with the tapered wells are formed through the nanoporous glass wafer as shown in Figures 1A and 1B. The nanoporous glass wafer is then attached to a rigidifying support member. See Col. 9, lines 1-9. In Beattie, the bottom of the nanoporous region (See Figure 1B) is available for the binding of molecules. Beattie does not in fact disclose the claimed porous region that is formed by selective removal of a substrate constituent (chemical leaching in one embodiment) and that extend partially through the substrate. The wells in Beattie extend through the entire nanoporous glass wafer and are formed by etching channels through the rigidifying support member. Beattie does not disclose that the wells are formed by "selective removal of a substrate constituent" in which certain atoms or molecules in the substrate, such as boron ion in borosilicate glass in the preferred embodiment, are selectively removed to leave voids in the substrate. Beattie does not disclose or suggest the features recited in claim 1 and is allowable over Beattie.

Tso discloses a microanalytical device that includes microstructures such as microcavities, microchannels and the like. See Abstract. For example, Figure 1 shows that a reaction zone 37 is formed which is connected by a microchannel. However, Tso does not disclose the particular claimed porous region that is formed by selective removal of a substrate constituent. The examiner makes a blanket assertion that these elements correspond to the microwells and porous regions, but provides no support for this assertion. In fact, Tso does not disclose the claimed porous region formed by selective removal of a substrate constituent and therefore claim 1 is allowable over Tso.

Appl. No. 10/798,639  
Reply dated April 18, 2006  
Reply to Office Action mailed October 19, 2006

The claims that depend from claim 1 are also allowable over Beattie for at least the reasons above. In addition, the other prior art cited by the examiner does not cure the deficiencies pointed out in Beattie.

#### Claim 27

In addition to the reasons set forth above of claim 1, claim 27 recites the addition feature of "a cavity located at a side of the substrate opposite the first side and extending partially through the substrate to intersect the porous region" which is not shown by Beattie. In fact, the examiner does not specifically point to any portion of Beattie that shows this feature and has not established a prima facie case of anticipation of claim 27. Therefore, claim 27 is allowable over the prior art cited by the examiner.

The claims that depend from claim 27 are also allowable over Beattie for at least the reasons above. In addition, the other prior art cited by the examiner does not cure the deficiencies pointed out in Beattie.

#### Claims 3-4 and 29-30

The claims are not anticipated by Beattie since Beattie does not disclose pores that are at least 2.5 to 32 nanometers in size (claims 3 and 29) nor pores that are between 7.5 and 32.0 nanometers in size (claims 4 and 30). Beattie discloses that the channels/holes in the nanochannel glass structure are as small as 33 nanometers in diameter or as large as several micrometers in diameter. See Col. 9, lines 49 – 52. Therefore, claims 3-4 and 29-30 are allowable over Beattie. In addition, these claims were not rejected based to Tso nor Beattie in combination with other prior art so that these claims are allowable over the prior art.

#### Claims 83-84

New claim 83 is allowable over the prior art at least because the prior art does not disclose the combination of features (the borosilicate glass and the porous regions formed by selective removal of boron ions from the borosilicate glass substrate to leave voids in the borosilicate glass substrate wherein sample molecules can bind to the voids in the borosilicate glass substrate) set forth in claim 83. The prior art also does not anticipate claim 84 that depends from claim 83.

Appl. No. 10/798,639  
Reply dated April 18, 2006  
Reply to Office Action mailed October 19, 2006

CONCLUSION

In view of the above, it is respectfully submitted that Claims 1-21, 23-4, 26-46, 48-49, 51-2 and 83-4 should be allowed and reconsideration is respectfully requested.

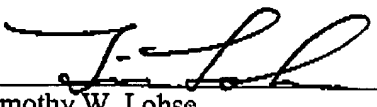
The Examiner is invited to call Applicant's attorney at the number below in order to speed the prosecution of this application.

The Commissioner is authorized to charge any deficiencies in fees and credit any overpayment of fees to Deposit Account No. 07-1896.

Respectfully submitted,

DLA PIPER RUDNICK GRAY CARY US LLP

Dated: 4-19-06

By   
Timothy W. Lohse  
Reg. No. 35,255  
Attorney for Applicant

DLA PIPER RUDNICK GRAY CARY US LLP  
2000 University Avenue  
East Palo Alto, CA 94303  
Telephone: (650) 833-2055